Malheur National Wildlife Refuge
Burns, Oregon

Narrative Report for Period September 1 to December 31, 1962

Roster of Permanent Personnel

John C. Scharff. . . . . .Refuge Manager
Eugene Kridler . . . . . Wildlife Management Biologist
Joseph P. Mazzoni . . . . . Refuge Manager
Lynn C. Howard . . . . . .Refuge Manager
Lee C. Tower . . . . . .Administrative Assistant
Ivan J. Carey . . . . . Refuge Clerk
Noel L. Cagle . . . . . .Construction and Maintenance Foreman III
Marselle Leake . . . . . Shop Foreman II
Eugene E. Storm . . . . . Mechanic, Heavy Duty
Elmer T. Ash . . . . . Dragline Operator
Roelan T. Blom . . . . . Dragline Operator WAE
Quentin L. Currey . . . . . Maintenanceman
Thomas B. Davies . . . . . Maintenanceman
Alfred S. Ludi . . . . . Building Repairman
Norbert J. Schekall. . . . . Caretaker

Roster of Temporary Personnel

Kenneth M. Cobb . . . . . Student Trainee - Wildlife Biology
Benjamin R. Ausmus...(term.10-22-62). . . . . .Painter
Ira R. Cox. . . . . .Laborer
Hal W. Hibbard . . . . . Laborer
William G. Kinney . . . . . .Laborer
Marvin L. Jess . . . . . Oiler
Leonard A. Tubbs . . . . . .Oiler

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Malheur National Wildlife Refuge
Third Period Narrative Report
September 1 to December 31, 1962

I. GENERAL

A. Weather Conditions.

Headquarters Station

	Snowfall	Precipitation This Month	Precipitation Normal		Max. Temp.	Min. Temp.
September	0	.15	.56		88	23
October	0	3.54	1.01		84	20
November	0	.70	.90		68	5
December	T	.66	.91		57	5
Totals:	None	5.05	3.38	Extremes:	88	5

P-Ranch Station

	Snowfall	Precipitation This Month	Precipitation Normal		Max. Temp.	Min. Temp.
September		.27	.56		90	26
October		3.12	1.23		81	21
November		1.56	1.04		69	6
December	T	.81	1.16		61	6
Totals:		5.76	3.99	Extremes:	90	6

Double-O Ranch Station

*Incomplete Records

	Snowfall	This Month	Normal		Max. Temp.	Min. Temp.
September		.04	.28		86	31
October		2.62	.76		80	20
November		.41	.83		67	10
December		.46	.97		60	30
Totals:		3.53	2.84	Extremes:	86	10

Buena Vista Station

	Snowfall	Precipitation This Month	Precipitation Normal		Max. Temp.	Min. Temp.
September		.11	.79		-	-
October		2.88	1.33		-	-
November	2.7	1.00	.81		-	-
December	T	.27	.51		-	-
Totals:	2.7	4.56	3.44			

* Incomplete records at Double-O Station during December.

Headquarters Evaporation Station

	Miles of Wind	Inches of Evaporation
September	567	6.92
October	542	2.40
November	689	.39
December	527	Disc. 11/7/62
Total:	2325	

Weatherwise, this period was characterized by much less wind than normal, and considerably more moisture. The calendar year of 1962 produced a total of 9.29 inches of precipitation as against an 8.75 inches for a 25 year average. The month of October produced 3.54 inches of moisture which is a new record for the station. During the past 25 years only three months have produced in excess of three inches of water. A 26 year average for this report period is 3.26 inches of rainfall, as against 5.05 inches in 1962. Only one other like period supplied more water in the way of rainfall.

B. Habitat Conditions.

1. Water. Overall water conditions were much improved with the unusually wet fall. Malheur Lake increased in size from a few hundred acres to upwards of ten thousand surface acres. Krumbo Reservoir raised from 8:25 feet on the gauge to 13.35 by the end of the period for a depth increase of over five feet. Harney and Mud Lakes continue dry with the exception of a few acres along the western shoreline of Harney, which is fed by the Double-O springs. Silvies River from the north didn't reach Malheur Lake, but many of the large sloughs filled for the first time since 1960, which should be an aid in spreading any spring water reaching this area.

Spring water at the Double-O was spread over a greater area than normally, which added to the waterfowl attractiveness of the unit. The Blitzen Valley had water throughout the season, as did Boca Lake, East Knox Pond, Krumbo Reservoir, Witzel Pond, Unit 8 and Skunk Farm Ponds. The farmed part of West Knox Pond was flooded as well as part of Buena Vista pond after harvesting. After the heavy rains of October, considerably more area was covered by water, either through seepage or diversion. A considerable acreage in Diamond flooded for the first time in a number of years.

The general water outlook for stream flow from the watersheds furnishing water to the Malheur Refuge is rather bleak at this date. One favorable condition is the excellent ground saturation at all elevations. Cold freezing weather undoubtedly will sap some of the ground moisture, and the unfavorable weather which frequently prevails during the month of March often accounts for loss of a considerable amount of ground moisture.

2. Food and Cover. The amount of food available this year was much less than last. Malheur Lake contributed no pondweed nor was the single oat field there very productive. Pintails and other dabblers rafting on the lake fed in stubblefields north of the refuge. Birds utilizing the Blitzen Valley fared better, but their populations were much smaller than those on the lake. The western one-third of Boca Lake produced good stands of sago. Geese, mallards, and cranes made excellent use of the 105 acre barley field at Buena Vista and to a lesser extent the 57 acres of oats in that area. The 97 acre oat field in Suicide Swamp was attractive to both geese and crane after it had been harvested by the permittee. 110 acres of spelt planted at Buena Vista was largely a blank because it was frosted badly early in the growing season, and provided little food for wildlife. Flooding of the 75 acres of grain in the Knox Field came too late after the peak of the migration; hence, this area did not have the use it did last fall. Geese and cranes, however, had been feeding in it much of the summer. Canada geese heavily utilized the barley left standing at the Double-O although it was a thin crop. Fall rains and mild weather during most of the period enabled grasses, expecially cheat, to become green, and geese and quail grazed considerably on such growth. Big game also benefitted. Harney Lake was almost dry this summer and very few ducks found it attractive as little aquatic life of any kind was present.

II. WILDLIFE

A. Migratory Birds.

1. Waterfowl. Although total waterfowl use for the period was greater than last year, it still remained substantially less than that of the past three decades. A number of factors are responsible for the continued exceedingly subnormal use. Chief among these is the drought still gripping eastern Oregon and which has reduced Malheur and Harney Lakes to mere remnants of their normal size. The loss of Malheur Lake as a food and water area is very serious. Contributing also was the leisurely migration of birds which, when they finally were driven out of Canada, apparently passed rapidly through. Reduced flyway duck populations, if early Service predictions are borne out inventory time, contributed to some degree.

   Goose use was but 34% of the past 10-year average; swan 8%, duck 31.5% and coot 8%, but all except that for geese were better than last year. Duck use was double, and so was that for coot. Goose was not quite half.

   a. Swans. -Whistling Swans only peaked at 600 during mid-November. Many flights kept passing over the evening of November 15, but few tarried. Malheur Lake had no sago to attract them.

Use is directly correlated with the amount of sago in the lake - no sago, no swan.

b. Two trumpeter swan cygnets were present on the refuge at the close of the period. One was produced on Benson Pond, and later the adults moved it to Witzel Pond. At the close of the period they were found on Krumbo Reservoir. The other may have been raised on Unit 8 Pond. Some pairs apparently move off the refuge during the summer because we tally more adults in the winter. Occasionally one was seen on a small water area east of here at Stinking Water Reservoir during the summer and now and then single birds are reported as scattered locations around us.

c. Geese. Both peak numbers and use by geese were the poorest of the decade. We should average 1.4 million use-days for the period, but this year only 479,000 days were recorded.

Canada geese peaked at only 3,725, (this the last week of the year), and use was but 59% of last year. The mild fall contributed to some degree, but even upon the advent of freezing weather no great influx into the area materialized. Snow geese largely continue to pass us by, and the peak of 3,375 birds is the poorest in well over 10 years, yet we hear of flyway populations which are up considerably. Use was but half of last year, and 20% of the ten-year average. Most of these birds utilized the Double-O Unit, while the remainder rafted on Malheur Lake or grazed on plants growing on exposed lake bottom there. At times a few hundred were found on Skunk Farm Pond in the Blitzen. No cackling or Ross geese were recorded this year. White-fronts were present in September and early October in limited numbers.

On November 8 the writer and Pilot-Biologist Glahn saw an adult blue goose on Harney Lake. It was there a week later. Blue geese are rare in Oregon. The last time one was seen here was on March 22, 1958.

d. The steady and almost disastrous decline in duck peaks and use was interrupted this year as both were a little better than double those of a year ago. Use still was a third of normal and peaks about a fourth. Mallards and widgeon were not as abundant as last year or for any year in the last 10 years. Generally, use for both is in the millions, whereas this fall that for mallards was slightly better than a half-million and widgeon less than a third. The much better than 1961 populations of pintails, 61,300 to 14,300, were mainly responsible for the increase in total duck use and peaks. Both were the best since 1957. We were unable to attain our preseason banding quota of this species because of their

relative scarcity and began to wonder whether we would see any numbers at all. In mid-October numbers jumped from 3,250 to 32,000 and increased to a peak of 61,000 in early November. During those times, Malheur Lake was a favored loafing area during the day and harbored 95-99% of the refuge population. Traps set out for swans were rapidly cleaned of their bait by these birds.

Green-winged Teal and gadwall populations were better than last year, but much below the average. Loss of Harney Lake affected the shoveler populations drastically for the second straight year.

What little diver use was made of the refuge was confined mainly to Boca Lake, Knox Pond, and the Double-O units. Very little took place on Malheur Lake where these birds would have suffered concussions if they had tried to dive in the shallow water which had little food for them anyway. We cannot agree with Central Office thinking that divers are best served by leaving Malheur Lake alone instead of subimpounding it. For three straight years it has offered them nothing because what water we had was wasted through evaporation during the summers. In 1957 and1958, good water years and lots of sago pondweed produced in the lake, populations of canvasback were 82,000 and 153,000. This year our peak was 300. In those years redheads peaked at 5,000 and 3,000, but this year 1,600, while last year at only 700. This year scaup, goldeneye, and bufflehead numbers were similar to a year ago, but ruddies were in short supply.

On Dec. 27 a male Barrow's goldeneye in full winter plumage was observed on the display pond by the biologist. This makes the third year in a row this species has been observed and/or collected here.

2. Other Waterbirds. Coots peaked at 23,000 early in September, and use days were more than double a year ago. Boca Lake and Knox Pond, expecially the latter, were favored areas and the Double-O also proved attractive. Fair amounts of sago in the former water units and milfoil in the latter were responsible. Malheur Lake hosted about 4,000 during the late summer, a trifle compared to most years. Use for the refuge is less than one-tenth the 1952-61 average. No coot problems here.

White pelican populations remain low because of the lack of carp in Malheur Lake. The 200 present at the beginning of the period were found in ponds in the Blitzen. Heron and egret numbers remain low for the same reason.

Sandhill crane numbers were about equal those of the pasttwo years. The barley field at Buena Vista was the main feeding area, then some moved into the oat field there when it was harvested.

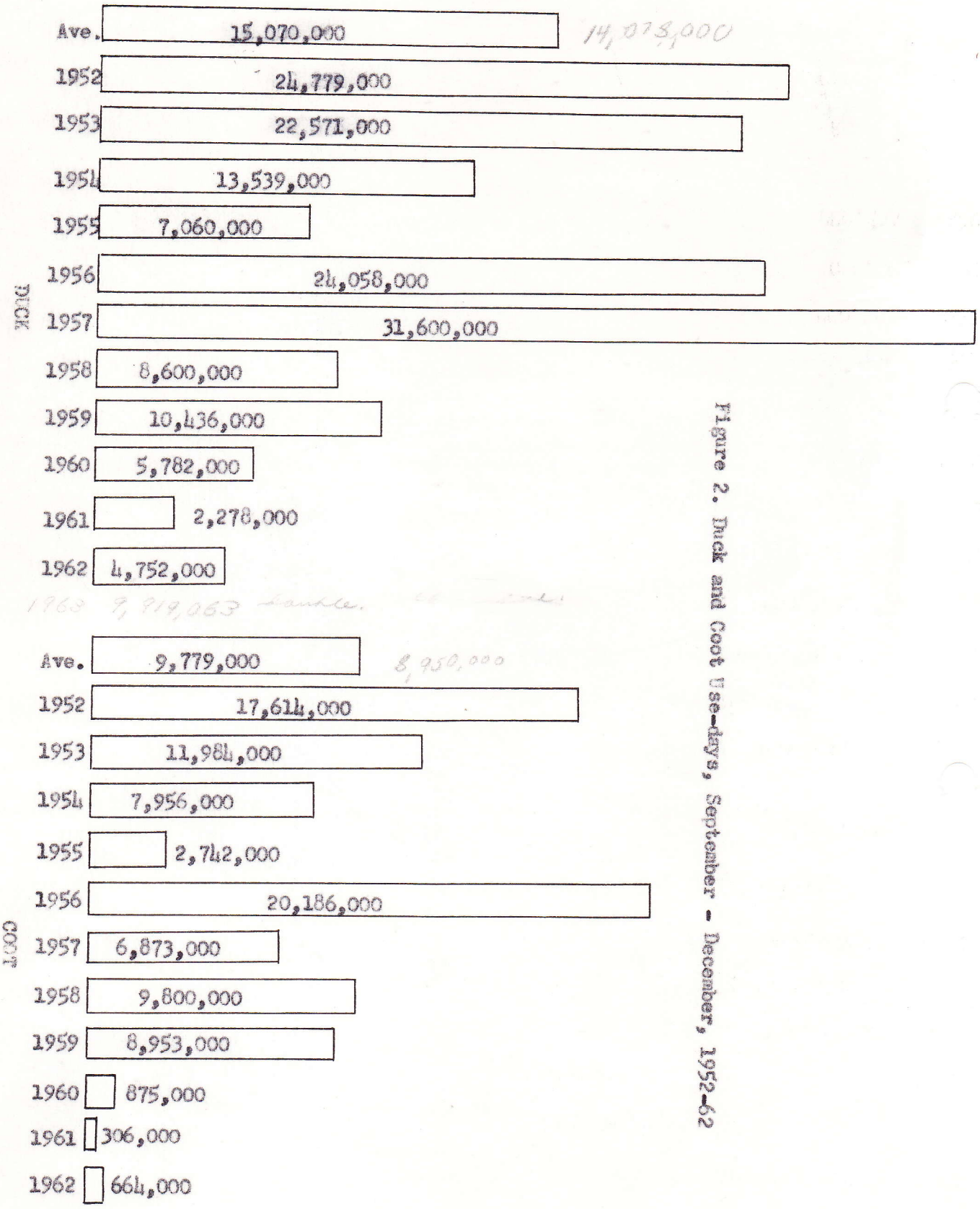


Figure 2. Duck and Coot Use-days, September - December, 1952-62

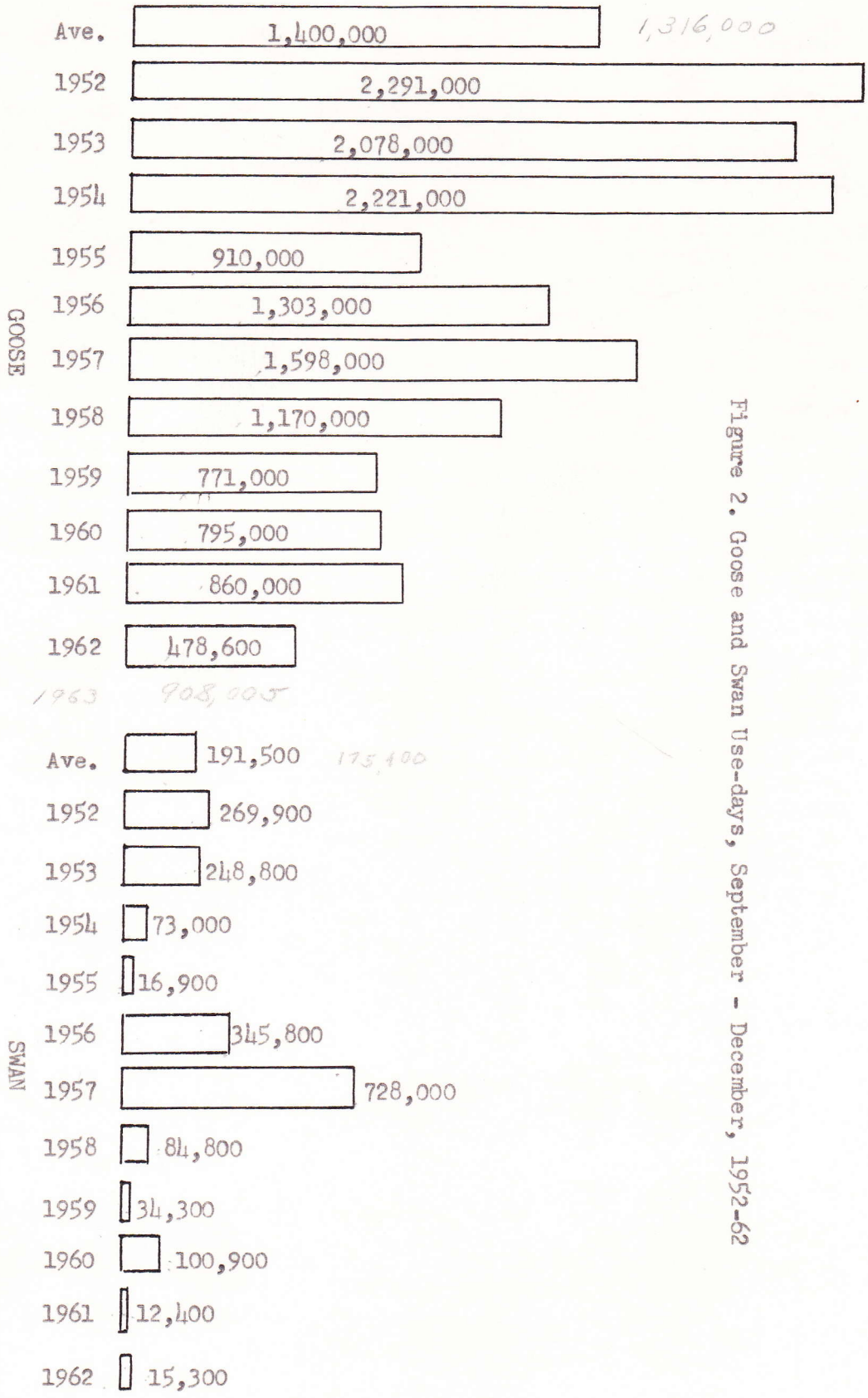


Figure 2. Goose and Swan Use-days, September - December, 1952-62

Each evening they flew to the Skunk Farm Pond to spend the night. They left us in mid-November, as usual.

3. Shorebirds, Gulls and Terns. The peak of the shorebird migration passed through before the start of the period. Numbers of most species remain lower than normal as neither Harney or Malheur Lakes proved to be too attractive. Three dowitchers were seen as late as November 21 on Malheur Lake - a late date for them here.

4. Doves. Mourning dove populations were about the same as last year. By the end of September most had departed. One tarried until November 17.

5. Upland Game Birds. Quail were in plentiful supply, and although not quite as abundant as last year, still reflected a good summer of production. Fall rains caused grasses to become green, and these birds utilized such food extensively. Many crops examined after mid-October were packed with green grass. Previous to that time ants constituted a large part of their diet. Hunting success was excellent as was that for chukars whose numbers were about those of last year. Favorite areas for both were the sagebrush-covered slopes and rimrocks west of the refuge boundary line from Unit 8 Pond to Frenchglen. Sage grouse were much more in evidence, and on September 16 about 125 were observed at the Pushup Pond Field. Pheasants were slightly more common than last year. Although the majority are found in the Boca Lake area, there was a wider distribution this fall. No gray partridge were seen this fall.

C. Big Game Animals. Little change in antelope numbers took place between the summer and this period. Most still frequent the north side of Malheur Lake. More mule deer were present this fall than last. As usual, most frequented the Blitzen Valley, especially around the P-Ranch area. A late afternoon count from Buena Vista to the P-Ranch on November 7 disclosed that 157 animals recorded, 82 were does, 62 fawns, and 12 bucks. We know that we missed bucks, which tend to remain concealed in the willow thickets. No forked-horns were recorded, however. Five were 4-points, two 3-points, and five 2-points. Rutting was observed at Skunk Farm Pond. December saw a steady exodus from the refuge. The mild winter to date will be in their favor.

D. Fur Animals, Predators, Rodents, and Other Mammals. The prolonged drought continues to raise havoc with muskrat habitat, and their populations remain very low. Not one new house was observed on Malheur Lake this fall. There will not be a trapping season this year. Jackrabbits appeared to be on the rise this summer, but now they are more scarce than a year ago. No sick or dead animals, other than highway kill have been noted. They just seemed to disappear. Cottontails are more abundant, expecially along Highway 205 from Buena Vista to Frenchglen.

Beavers continue to be a nuisance in canals. One built adam of driftwood and debris in a small channel of the Blitzen River, where it runs into the remains of Malheur Lake. There are no trees within a mile. Raccoons are down, and caused no trouble in the display pond this summer or fall.

Coyote and bobcat numbers are up a little. The increased vole and small rodent populations offer them better food conditions than they have experienced for the past several years.

E. Hawks, Eagles, Owls, Crows, Ravens, and Magpies. Only one immature bald eagle has been seen this period. The remaining nine were adults. Total numbers are identical to last winter. The special eagle census conducted on December 26-28 resulted in a total of 20 golden eagles being observed, and six of these were immatures. Last year the census, comparable coverage, tallied 12, of which four were immatures. We conservatively estimate a refuge population of 30, the highest in a decade. We are 100% for them, for they are a noble bird, regardless of what some so-called game experts think. What so-called sportsmen cripple and lose in a day would feed many an eagle. At least they search for what they cripple.

Populations of other hawks appear to be unchanged, as do those of owls, with the exception of the short-eared which did not appear to be quite as abundant this fall.

Of interest was the burrowing owl noted near Lawen on October 18, (somewhat late) and a barn owl observed at headquarters on October 27. (rare here)

F. Other Birds. Wintering populations of small birds are very low. This is most noticeable for robins, juncos, mountain bluebirds, and blackbirds. For the first time in many years no red-winged blackbirds were observed during the Christmas bird count, when 46 species totalling 3,931 individuals were recorded. A flock of 15 Clarke's Nutcrackers were seen during the count. These birds are extremely rare on the refuge.

No additions were made to the refuge bird list, but banding continues to turn up interesting things. Two northern waterthrushes were banded on September 5. These constitute the third and fourth records for the state. The second was also picked up here in 1961. Seven red-eyed vireos and seven American redstarts were banded here the past year. Both species were first recorded in southern and southeastern Oregon from this station in 1960.

A total of 2,049 individuals of 98 species of birds, other than waterfowl, were banded here in 1962.

G. Fish. From October 23-30 the Silvies River from below Five Mile Dam to its terminus at the Ruh ranch was treated with rotenone for carp.

Drip stations were set up where feasible, while other stretches were treated by canoe. Pockets of water, principally found from the Ausmus property south, were treated on foot with the use of backpack pumps. No accurate tally of dead fish could be made, but the kill ran into the thousands. Carp ranged in size from 1-24 inches. A local pilot flying over the Bell-A ranch told of seeing dead carp lining the canals there by the "m-m-m-millions!". These had been carried down by the current. Isolated stretches, on the Voegeler property, especially, contained thousands of carp 2-4 inches in length. Local ranchers, through whose property we had to travel for access to the river were very cooperative and were pleased with the operation because near elimination of carp resulted in much clearer drinking water for stock. At no time were more than three men involved in the operation. The state game commission loaned us two backpack pumps for the operation. Purpose of the project was to eliminate carp brood stock being washed into Malheur Lake next Spring in the event of a winter of good precipitation. Prospects in October looked much, much rosier than they do now, for a runoff.

The Blitzen from Bridge Creek south was also treated to eliminate carp missed last year, but very few were found. The East Canal from Boca Lake south, and 5-Mile Spring were also treated. Several hundred dead were found in the latter. We suspect some, however, to be in Boca Lake. The West Canal from Frenchglen south was treated to box in carp trying to avoid rotenone in 5-Mile Spring. No dead carp were found in the lower reaches of the river or in the lake. Undoubtedly some may have been missed, but our observations and checks indicate the total population at present to be almost non-existent. The stage is now set for a good runoff into Malheur Lake if snow ever comes this winter.

Investigations of Krumbo and Boca Lakes by Fishery Management Biologist Morton included gill net sets in Krumbo the night of September 25. Results are listed in Table No. 4. Also caught were 17 roach, whose scales when read disclosed them to be fish of the year. Since the reservoir was treated last year, the question arises as to how the roach got in. A few may have been missed, (likely) or else eggs were present which hatched after treatment and the effectiveness of the rotenone had dissipated. The presence of 12 unclipped fish indicates some natural reproduction from Krumbo Creek. Only two fish with their anal fins clipped, indicates poor survival of the legals planted in April. The trout data agrees with that obtained with the sets made August 3. Excessive amounts of a banana-like algae, Amphizoneman, plus low waters may be responsible for poor survival the past two summers. Another possibility is that strains other than the Williams Lake strain may not do was well as that strain. First and successful plantings were made with that strain, which we understand hatchery men care little about because it is not as easy to raise as others.

In order to get better utilization of planted fish, Krumbo will be opened to fishing on April 20 the coming spring, instead of July 1, as has been the case prior years.

Table No. 4

Size	No.	L.V. Clipped *	Anal Clipped	Unclipped
5-6	4	4	0	0
6-7	24	24	0	0
7-8	28	28	0	0
8-9	3	1	0	2
9-10	2	0	0	2
10-11	2	0	0	2
11-12	1	0	0	1
12-13	4	0	0	4
13-14	0	0	0	0
14-15	2	0	1	1
15-16	1	0	1	0
Totals:	71	57	2	12

* Left-ventral fin.

Little waterfowl nesting takes place on its shores, and observations past years reveal little conflict between fishermen and waterfowl. The former stay in the deeper areas, and the latter, the shallow upper end, which contains considerable flooded growths of dead sage

Plankton samples taken from Boca Lake September 26 contained large numbers of giant pink Cladocerans (water fleas) which will be excellent food supply. Water temperatures, depths, pH, etc. all were considered suitable for trout, so on October 2, approximately 75,000 Williams Lake strain rainbows averaging two inches in size were liberated. Purpose is to reestablish the run up Bridge Creek and the Blitzen for which Boca was locally famous, and which produced excellent sport.

I. Disease. Only an occasional flapper was seen on the lake this summer and fall, so botulism was practically non-existent.

We heard several reports of sick small animals on the refuge, but were unable to pin them down to anything specific. One concerned a sick mink which was killed and discarded several weeks before the report. Another involved a raccoon with sores or boils on its back - reported a month or so after it was seen.

III. REFUGE MAINTENANCE AND DEVELOPMENT

A. Physical Development.

1. Restoration of Dikes, Bridges, Roads, Fence, and Structures.

The new gates were installed at the Grain Camp Dam which ran into quite a job, as new anchors and guides were designed for this structure. The first I beam anchors were too light, and collapsed with a minimum of water pressure. It was necessary to replace them with heavier beams. These were heavily reenforced with welded ribs, and it is believed that they will remain in place. In connection with this structure, much heavy riprap was placed to precheck any water damage near the structure. 2,104 cubic yards of riprap were hauled and placed on the Buena Vista and Center Canals just below Grain Camp Dam.

Old inoperable gates were removed from the Buena Vista Canal inlet and flashboards installed pending installation of new gates in this structure.

The Brenton Cabin bridge and related return flow spillway was strengthened with riprap.

The Division Dike between the East and West Knox Ponds was surfaced and strengthened, and two boat landings were made, surfaced, and riprapped.

Two cement structures were repaired and bedded in gravel on the Double-O unit. Likewise, a number of structures were rip-rapped and strengthened in the P-Ranch and Buena Vista Units.

A number of washouts were repaired in the Diamond Canal system.

Six miles of fall road blading was done in the P-Ranch unit. The new P-Ranch yard fence was constructed this period.

Whilte the bountiful fall rains were gratefully received, the resultant water in the Diamond Unit has plagued the progress of the Diamond Drain project. The pipe order was received and delivered to the county road headquarters in lower Diamond Valley. Two 48" x 36' pipes with riser type headgates have been installed, as well as two pipes with screw headgates. These four pipes are bedded in 284 cubic yards of gravel, which should hold them for all time. 1550feet of canal and levee was accomplished, to the tune of 6,085 cubic yards of earth moved.

At the Double-O, the Golden and St. Clair Canals were cleaned, a total distance of 6.2 miles, moving 32,486 cubic yards of earth. This job will certainly enhance the water management of this unit. These canals were cleaned 15 years ago, and the machine which cleaned them is still a good rig, working in Diamond Swamp. Incidentally, the operator which did the Double-O operation 15 years ago is on the same machine at this time.

Eight and a quarter miles of new fence was constructed, 11-3/4 miles of old fence razed and much of the wire used in the new fence, and two and three quarters miles of boundary fence maintained to the standard of original construction. The above was accomplished by a three man fence crew, and in addition approximately 30 miles of fence was maintained by the maintenance men at the various station.

2. Carpenter Department. In addition to small current repair work to buildings, a number of major maintenance jobs were performed. The Springer house at the Refuge Headquarters was thoroughly renovated throughout. Repair of cupboard, kitchen drain board, window screens, etc. were accomplished. Both the dwelling and garage were painted; the dwelling inside and out.

At the Refuge Headquarters three other residences, the Rome dwellings' double garage, the service building, shop and barn were painted. Fuel tanks in connection with the dwellings were likewise painted.

A shelter box was provided, and a telephone installed on the north end of the service building at Buena Vista, as a convenience for any emergency, during times when no one is present at the dwellings.

A number of signs were taken down and refinished. The type of finish being used on the digns does not lend itself to weather exposure.

The south side of the repair shop was reshingled as a result of the wind ruffling up the composition shingles during the severe cold weather of last winter.

One dwelling at the Old CCC Camp was given one coat of paint. Storm windows were provided for Quarters No. 2 at Refuge Headquarters, sewer lines cleaned and septic tanks pumped out, about Refuge Headquarters.

An electric hot water heater and shower bath was installed at the Double-O, in the pump house, for use of bunkhouse occupants.

A utility box was built for a pickup. A bookcase was built for the office.

One 16 foot steel gate and a four foot steel gate were built for the new P-Ranch yard fence.

A small materials cabinet was constructed for the service building.

In addition to the above a number of small maintenance items were accomplished, such as a flue jack was installed at the P-Ranch dwelling. The topping of the nearby trees resulted in a down draft. A new thermostat was installed at one of the Rome dwellings, window screens built and repaired, a utility box installed on a pickup, and a number of other small maintenance items.

3. Repairs to Equipment and Shop Work. In addition to normal maintenance and minor repairs both in the shop and field, eleven 5000 mile inspection and tune-ups were done, a complete motor overhaul given International dump truck I-53954 and a valve and ring job, plus connecting rod bearings on Dodge pickup I-49806. New timing gear, gaskets and seals, and oil pan gaskets were installed on the motor of G.M.C. dump truck I-53956. A complete overhaul was given to the Hercules diesel motor in the Diamond T tractor unit. This transport will of necessity have to be fitted with a new power unit as early as possible, as the old outdated Hercules motor nowin use has served its time. The present motor in this unit was manufactured in 1943. A new take-off shaft, coupling and universal was installed in the front-end hydraulic loader mounted on the A.C. wheel tractor. During the early part of this period the entire fleet of equipment was winterized with anti-freeze, thermostats checked, and replaced where required, radiator and heater hoses inspected and changed where needed, and in some cases, heaters repaired.

B. Plantings.

1. Aquatic and Marsh Plants. None

2. Trees and Shrubs. None

3. Upland Heraceous Plants. None

4. Cultivated Crops. Owing to the continued drought condition, little farming was done on the refuge, this period, and year, and this condition prevailed all over Harney Basin. Killing frosts every month of the year didn't contribute to the productivity of the areas planted.

On the refuge 362 acres of barley, 154 acres of oats, and 110 acres of speltz were planted for grain. Approximately 300 acres of volunteer rye produced some grain both for harvesting and waterfowl use left standing. 250 acres of oats was planted for hay, one field of 50 acres freezing out completely, and 200 acres located along the shoreline of Malheur Lake made good hay. This latter grain was planted in June, and was too late for grain. It was only by virtue of a cool summer that this late planting was a success, even for hay.

C. Collections and Receipts.

None

D. Control of Vegetation.

1. Summary of 1962 Weed Control. The rather extensive grasshopper control program which we were confronted with during the months of May through June sharply curtailed our weed control program and control activities were limited to small spot treatments, and one experimental project as summarized below.

a. Plant Species Sprayed.

White top (Hymenophysa pubescens)
Soil sterilent treatment - all vegetation in treatment area.

b. Growth Stage.

White top - intermediate to full
Soil sterilent treatment - most plants dead, some grasses making new growth as result of heavy October rains.

c. Treatment Dates.

White top - July 5, 1962
Soil Sterilent treatment - November 9, 1962

d. Acres Sprayed.

White top - about 400 sq. ft. or .009 acres.
Soil sterilent treatment - 2004 sq. ft. or .46 acres.

e. Area Sprayed.

White top - Two patches along the Center Patrol Road in the Wright Field, and one patch just east of the Ramelli Bridge along the Lava Beds Road.
Soil sterilent treatment - 4' strip around buildings number 20, 23, 18 and 34 at various rates of application.

f. Chemical Control.

White top - Amine salt of 2,4-D, 4# acid equivalent/gal.
Soil sterilent treatment - Sodium Chlorate (Atlacide), 58% active ingredients/lb. of dry chemical.

g. Application Rates.

White top - .66 pint/5 gal. water. Estimated at 4# active ingredient/acre.
Soil sterilent treatment - Bldg. No. 20 - 3#/sq. rod, 263.2# active ingredient/acre; No.23 - 5#/sq. rod, 488.8# active ingredient/acre; No.18 - 8#/sq. rod, 743.1# active ingredient/acre; No. 34- 11#/sq. rod, 1052.7# active ingredient/acre.

h. Method of Application.

White top - back-pack pump.
Soil sterilent treatment - home made shaker can.

i. Cost.

White top:	Materials.....	$1.17
	Labor.....	3.21
	Equipment Operation....	1.50
	Total:	$5.88
Soil sterilent treatment:	Materials.....	$6.05
	Labor.....	9.63
	Equipment Operation....	.05
	Total:	$15.73

j. Apparent Kill as Evident at the End of the Growing Season.

White top - Those patches sprayed showed a definite wilting effect within seven days after treatment. The extent of the kill obtained will become more evident during the 1963 growing season.

Soil sterilent treatment - Brown patches in the new grass began to appear within 14 days following treatment. Extent of kill won't be evident, of course, until the spring of 1963.

k. Kill from Previous Year's Spraying.

White top - In 1960 about 75 acres of White top were sprayed in the Double-O unit and in the spring of 1961 it appeared that we had obtained about a 90% kill. There was some doubt at this time whether or not this was a reflection of the true kill, as growing conditions in this area were very poor due to a dearth of water over much of the unit. In 1961 about 5 acres were sprayed and in the spring of 1962 it again appeared that we had obtained an 80-90% kill, as the noxious weed was now limited to very small patches scattered few and far between. Unfortunately, as mentioned above, we were unable to do any spraying in this unit this year; however, we feel that a small amount of annual spraying, beginning with the 1963 growing season, will serve to keep this troublesome weed in check.

Soil sterilant treatment - not used here for the past several years.

Sodium Chlorate was applied around all four sides of the above listed buildings with the exception of building 18. The south side of this building was not treated, as a further margin of SAFETY in protecting the Russian Olive trees growing 45 to 50 feet farther south. Three additonal buildings in this immediate area were also left untreated and will be used as controls. This experiment was set up to test the effectiveness of Sodium Chlorate as a soil sterilent under local conditions, and applied at various rates to get some idea of the proper application neccessary to achieve the desired results. We are hopeful that much of the laborous and costly hand weeding practices now applied may be eliminated by the effective use of a soil sterilent.

F. Fires. During the period two small fires were experienced; one of about 9 acres and one of one quarter acre. The smaller of the two was caused by a spark from a breather exhaust, and the larger one probably was a smoker fire. The latter fire started on a day of low humidity and a brisk wind. Permittees and neighbors responded as usual from all directions and both fires were brought under control in a short time.

The refuge was fortunate in not having any serious fires' as the stage is always set anytime after the first fall freeze. The bountiful October rains brought the fire season to an abrupt end.

IV. RESOURCE MANAGEMENT

A. Grazing. The forage production for the calendar year of 1962 was certainly short of a normal, to say the least. The Double-O unit was again short of water and much of the good grazing ground was again dry. The canal system for the part served by the warm springs was so fouled with vegetation and sediment that some areas were short changed. This condition is now corrected by the cleaning of these canals for the first time since 1948. Mud Lake country produced little forage, only salt grass and greasewood. Malheur Lake did surprisingly well for having such a small amount of water, as a bountiful supply of foxtail grew on the areas from which the water receded. The grasshoppers did some damage to forage, but mostly on the higher elevations of the lakebed.

The summer grazed areas in the Blitzen Valley again reflected good waterfowl use. It is noted on some of the summer grazed areas that Canada thistle is becoming more evident, and some control measures will be taken another year.

Generally, livestock have done quite well during the period. Owing to the extra amount of rainfall during October, all species of standing forage remained more palatable, and heavier use of standing forage was greater. By the same token, less bunched feed was used, and the fields are all holding much better than expected.

B. Haying. With the exception of one permit for hay, all other hay is used on a grazing basis. The one permit was issued for the growing of oat hay in Malheur Lake bed. This proved quite successful owing to the cool summer enjoyed.

C. Fur Harvest. No fur removal was undertaken this period.

V. FIELD INVESTIGATION OR APPLIED RESEARCH

A. Progress Report.

1. Waterfowl Banding. Results of the preseason banding operations are as follows:

Mallard	1,152
Pintail	441
Redhead	68
Canvasback	5
Scaup	4
Widgeon	3
C. Teal	2
Gadwall	1
Coot	121
Total	1,797

We were unable to make our quota of 500 pintails owing to low populations even though traps were moved several times in attempts to achieve that goal. We exceeded our mallard quota of 500 in the process, by 652. Sex and age ratios are listed below.

Table 5. SEX AND AGE DATA OF PRESEASON BANDED MALLARDS AND PINTAILS

	Mallard	Pintail
	AM 351	AM 269
	IM 324	IM 67
	AF 285	AF 78
	IF 180	IF 27
	LM 8	-
	LF 4	-
Totals:	1152	441
% Adults:	59.2	78.6
% Immatures:	40.8	21.4
Imm. per adult:	.7	.3
Male " female:	1:4	3:2

2. Colored Whistling Swan Project. This project was continued this fall in order to get more information next spring from Alaska and northern Canada. Enough data was gathered last fall and winter to delineate the fall migration routes and wintering areas. It was decided to dye this fall in the event that conditions were such the coming spring that we would be unable to acquire a sample then. A total of only 37 were colored this fall. Whereas last year we trapped 102 between October 20 and November 9, and ceased operations on the latter date, this year we didn't trap our first until November 6. A week passed before we were able to get another. Then, on the 12th, we caught 11 at the same time. Operations continued until the 29th, when ice and the lack of birds caused operations to be suspended. Not that we had an abundance to start with. Swan flights did not linger more than a day or so, but most only rested on the lake overnight before moving on. Ducks consumed the bait placed in traps set out in the lake. Traps set in Witzel Pond began to be productive until closed by ice. On Nov. 15 several flights totaling 450 or more birds circled the traps in the display pool where our trumpeters were acting as decoys while feeding. A number set their wings, but then heeded the calls of the other flights moving south overhead and swung south also - sped on their way by sulphurous comments from a biologist below.

Three adult females banded and dyed last year were retrapped. All retained some dyed feathers in varying amounts ranging from only one each on the lesser and middle coverts on the right wing, to 17 on the coverts of both wings, and nine on the back of the body.

The third bird had a total of five dyed feathers on the lesser and middle coverts of both wings. On November 13 another which we were unable to retrap flew over the pool very low and well over one-third of the feathers on its body remained dyed so that it presented a mottled appearance. Moult is obviously incomplete in the summer.

Weights, measurements, coloration of lores and the edge of the lower mandible were recorded. All had some degree of red, (purplish in immatures), streaking along the lower mandible, so the statement is false that is made in some books that only trumpeters have this streak. Within a week the dye on the wings and scapulars of some birds began to change from a yellow to orange.

Even though the project received much more publicity this year than last, the number of reports of observation was far less. The sample was, of course, a third less to begin with. Some of the birds remained here for a long time. One was seen at the Double-O on December 28. Reports from other areas conform to those of a year ago and were once more from Summer Lake, the Klamath Basin, and Alturas during migration and the Sacramento-Stockton area while wintering.

Average weights of adults were a half-pound lower than last fall, sub-adults one-eighth pound lower, while immatures were the same. Sample sizes of the first two were considerably less, while that for immatures was the same. (17). An adult female weighing 13 lbs. 8 oz. when dyed on Nov. 11, 1961 weighed 12 lbs.-15 oz. on Nov. 13 this year. Another weighing 10-12 on Nov. 2, 1961 weighed 10-1 on Nov. 19 a year later.

Two reports, both from Alaska, of birds dyed last fall or spring were received this period. One concerned a lone bird near Aniak on May 3, and the other three seen on June 29, near Iqushik. So far, eight different site localities in Alaska are involved. Several are from the Copper River and Anchorage areas, and the remainder from the western part of the Bering Sea - the furthest west, almost on the coast northeast of Nunivak Island.

This spring we intend to go all-out, and hope we can catch enough to fill out the gaps, so the project can be terminated.

3. Pesticides Study. No word has been received from the Branch of Research regarding specimens of birds, mammals, and vegetation submitted to them last summer for analysis in conjunction with the grasshopper control program. Department of Agriculture pest control officials are beginning to plan for possible operations this spring, and we are very interested in the results of the analysis, especially since dieldrin was, and may be used again.

Table 6. WEIGHTS OF YELLOW-DYED WHISTLING SWANS

Nov. 6-29, 1962 Pounds and Ounces

	AM	SAM	IM	AF	SAF	IF
	11-5	8-15	9-2	10-0	8-12	7-5
	12-4	11-2	9-7	10-1	11-11	7-15
	12-7		11-6	10-5	12-14	7-15
	13-7		12-15	11-2		8-0
	15-7		14-4	11-6		9-7
				11-14		9-8
				12-0		10-5
				12-2		10-7
				12-15		10-8
				13-9		11-0
						11-9
						11-12
Ave:	13-0	10-0	11-4	11-6	11-1	9-6
No:	5	2	5	10	3	12

Table 7. AVERAGE WEIGHTS IN POUNDS AND OUNCES

Sample Size in Parentheses

	Fall,1961	Spring,1962	Fall,1962
Adult Males	13-6 (17)	14-3 (10)	13-0 (5)
Adult Females	11-4 (21)	11-5 (9)	11-6 (10)
Subadult Males	11-2 (8)	13-10 (6)	10-0 (2)
Subadult Females	10-10 (14)	11-4 (6)	11-1 (3)
Imm. Males	10-3 (14)	12-8 (1)	11-4 (5)
Imm. Females	9-9 (8)	11-5 (10)	9-6 (12)
Males	11-12 (39)	13-14 (17)	11-13 (12)
Females	11-1 (47)	11-4 (25)	10-7 (25)
Adults	12-8 (38)	12-13 (19)	12-0 (15)
Subadults	10-13 (22)	12-6 (10)	10-11 (5)
Immatures	10-3 (17)	11-6 (11)	10-3 (17)

VI. PUBLIC RELATIONS

A. Recreational Uses.

1. General. Generally, recreational use of the Refuge indicated a slight increase over a year ago, and in all cases numbers reflect conservative data. The paved road toward Frenchglen was completed another six miles and the money already ear-tagged for another 12 miles during Fiscal Year 1964. The survey work on this new sector is largely done, and according to the best information, the contract will be let shortly after July 1 of 1963.

The BLM has connected the Steens Mountain Loop road and plan on the completion of this project during the summer of 1963. This road coupled with the Center Patrol Road through the Blitzen Valley part of the refuge will be one of the most popular scenic drives in Oregon. Along with the road plans is the development of three camping areas on beautiful sites. The multiple-use plans and development of the neighboring Steens Mountain area by the BLM overshadows the puny recreational efforts put forth by the refuge.

It is estimated that a total of 12,000 visitor days were enjoyed on the refuge during 1962. Of the total, 3% were hunters, 10% anglers, and 10,436 others. Of this latter number, perhaps 900 were business visitors. The balance of over 9,000 days represents recreational use.

A total of 2,080 persons registered in the refuge museum during 1962. The figure does not represent a total of museum visitations, as it is a well known fact that all visitors do not register. Visitors from 33 states, three provinces of Canada, Washington, D.C., England, Brazil and Panama were represented in the museum registration.

B. Refuge Visitors. Official visitors and those of special note during the period were as follows:

September

1 Dr. Geo. Graham, Haverton, Pa., U. of Pa., Parisitologist
5 R. Higgins, Portland, Oregon, G.A.O.
Max Read, " " G.A.O.
10 Thorvald Risdal, Portland, Ore.; R/O; Office of Engineering
11 Mrs. Edith Walford, " " ; Personnel Office, BSF&W
13 Prof. Wm. H. Behle, U. of Utah, Director of Biological Sciences, Salt Lake City, Utah
14 T. Risdal, R/O of Engineering, Portland, Oregon
19 Stephen E. Smith, Grade School Principal, Portland, Ore.
26 J.W. Thompson, Photographer, Seattle, Washington

20 Kent Giles, Dist. Mgr., BLM, Burns, Oregon
Ray Novotny, County Agent, Burns, Oregon
Dick Hotchkiss, Pres. Harney Co. Cattlemen's Ass'n., Burns
21 Stephen Smith, Portland School System, Portland, Oregon
22-24 Chas. Conkling, Photographer, Portland, Oregon
25-26 Mark Morton, Fishery Biologist, BSF&W, Regional Office
26-27 Dr. Thompson, Seattle Slide salesman, Seattle, Wash.
9 Fred Anderson Family, 1st Malheur Clerk, Tigard, Oregon
16 Dewey Flowers, U.S. Forest Service, Sumpter, Oregon

October

8 Ray Glahn, Pilot-Biologist, BSF&W, Portland, Oregon
Aerial census
9 Dr. C.L. Holmes, U.S.D.A., Ontario, Oregon
Bangs' testing
14-15 Thorvald Risdel, Engineer, Portland, Oregon
17 John D. Wendler, Game Agent, BSF&W, Lakeview, Oregon
20 Dr. & Mrs. F.W. Reid, Wasco, Oregon; Worked with Benson on Malheur Refuge

November

5 Orvis C. Gustad, Predator Control, Prairie City, Oregon
Alvin Coons, Predator Control, Crane, Oregon
Russell Zink, Predator, Control, Crane, Oregon
David S. Hokans, E. Holden, Maine
Donald W. Klick, Boston, Mass.
Ted Hanson, Las Vegas, Nevada
14 Elmer H. Simpson, Desert Game Range, Las Vegas, Nevada
4 Loella Springer McGinnis, Darris, Calif. A native returns.

December

3 John C. Jones, BSF&W, Washington, D.C.
Melvin D. Smith, BSF&W, Portland, Oregon
6 Daniel Baker, BSF&W, Portland, Oregon
13 Barry Duncan, BLM, Burns, Oregon
John Gross, BLM, Burns, Oregon
28 John Wendler, Game Mgmt. Agent, Lakeview, Oregon BSF&W
Pat O'Keefe, BLM, Burns, Oregon
29 Col. P.C. Loofbourron, U.S.A.A.F., Reno, Nevada
LT. Col. P.J. Wallen, U.S.A.A.F., Reno, Nevada
Major A.M. Rockwell, U.S.A.A.F., Burns, Oregon

6. Refuge Participation.

1. Refuge Manager Scharff. On September 12, 18, Oct. 23, and Dec. 11, Refuge Manager Scharff attended the Harney County Chamber of Commerce luncheons.

Pictures were loaned the Harney County Chamber of Commerce for an exhibit at the Oregon State Fair.

On Sept. 20 Refuge Manager Scharff attended a BLM 'Show-Me' trip on a range management area adjacent to the refuge. About 25 interested BLM personnel, stockmen, game management men and the local press attended the meeting.

On October 1 Refuge Manager Scharff gave an hour's talk on early Harney County history to the Burns Grade School teachers. Thirty-four were in attendance.

On October 17 Messrs. Scharff, Kridler and Mazzoni attended an Inter-Agency meeting in Burns. The Bureau of Land Management had charge, of the program. Refuge personnel put on a previous program.

Twobait horses were provided by the refuge for use in the predator control program.

Refuge Manager Scharff attended the Northwest Section meeting of the American Society of Range Management, at Kamloops, B.C., on November 26-27. Several days annual leave was taken during the trip, and one day was spent in the Regional Office in Portland.

2. Biologist Kridler. Participated in 'Operation Recovery' part of the week of Sept. 1-7. Attended Inter-State Antelope Conference in Boise, Idaho on Dec. 4-6.

Gave illustrated talk about refuge and waterfowl to 75 members of Boise Natural History Society, at Caldwell, Idaho on Dec. 6.

Attended rural school boards meeting at Crane, Oregon, on Dec. 14.

Conducted Christmas Bird Count on Dec. 26.

Attended, as a member, the monthly meetings of Sodhouse School Board throughout the period.

Refuge Manager Mazzoni attended Washington State Weed Conference Nov. 5-6, at Yakima, Washington.

Administrative Assistant Lee Tower attended Regional Accounting Workshop, Portland, November 8-9.

Shop Foreman Marselle Leake completed 20 years of continous service on Malheur Refuge in August, 1962, an item inadverdently missed in our last narrative.

On Sept. 6 Messrs. Higgins and Read of General Accounting Office on refuge reviewing quarters appraisals. Looked quarters over about refuge headquarters and reviewed all appraisal forms.

Mr. Thorvald Risdal from the Regional Office of Engineering spent parts of two weeks during September assisting in replacing the gates on Grain Camp Diversion Dam. While on the refuge, Mr. Risdal looked over Malheur Lake toward plans of development.

On October 9 Refuge Manager Scharff attended a meeting of the Silvies River Water Users for an improved delivery system. In all probability, nothing will come of the meeting.

On October 22 Robert Whaley of the SCS set up a short-wave radio set at the refuge headquarters to be used in connection with snow survey work.

Elmer H. Simpson of Desert Game Range visited Malheur Refuge on Nov. 14-15, picking up a truck load og grain for use on that area.

David Baker of the Office of Engineering in Portland visited the refuge on Dec. 6 and briefly looked over the Refuge Headquarters plot place toward a Master Plan of Development.

D. Hunting

1. Waterfowl. The public shooting grounds again remained closed this year due to the complete absence of water. This makes the fourth consecutive year of closure due to unfavorable water conditions.

2. Deer The archery season was held in the Blitzen Valley from Witzel Lane south to the P-Ranch on Sept. 15, 16 and 17. One deer of either sex was legal. A total of 184 hunters checked into the area and killed 21 deer. A total of six bucks, eight does and seven fawns were taken for a hunter success of 11 per cent. Only one minor violation was observed, and, in a general way, it was a successful season.

   The following page lists a detailed summary of the archery seasons on Malheur Refuge since 1956.

Summary of Archery Seasons on the Malheur Refuge

Year	No. of Hunters	Deer				% of hunters Successful
		Male	Female	Fawn	Total	
1956	135	17	14	2	33	24
1957	265	15	20	21	56	21
1958	275	14	29	18	61	22
1959	346	11	20	22	53	15
1960	295	3	8	9	20	7
1961	133	6	6	17	29	22
1962	184	6	8	7	21	11
1963	209	11	18	9	38	18

E. Violations

There were five violations during the regular firearms deer season consisting of five hunters apprehended shooting deer on the refuge. The case was made and handled by Oregon State Patrolman John McKelvey.

	Violation	Plea	Disposition by Court
1.	Hunting prohibited area	Guilty	$104.50 with $75.00 suspended
2.	" " "	"	104.50 with 75.00 suspended
3.	" " "	"	104.50 with 75.00 suspended
4.	" " "	"	104.50 Paid
5.	Hunting prohibited area	Guilty	$104.50 Paid

During the archery hunt an unusually quiet season was enjoyed violation wise. Only one warning was issued for failure to have license on person when in the field.

F. SAFETY. The station SAFETY committee for the September-December, 1962 reporting period consisted of: Ivan J. Carey, Chmn., Lynn C. Howard, Elmer T. Ash, members, and Lee Tower, Secretary.

Three station SAFETY and personnel meetings were held this period. Allowing for specific excused absences, attendance at all meetings should be considered 100%. No lost-time accidents occured during this period.

Station SAFETY committee held a meeting in the field at the site of the Grain Camp Dam construction. Ass't Refuge Manager Mazzoni acted for Messrs. Carey and Tower.

All SAFETY bulletins received at this station were discussed in the formal meetings. Three SAFETY meetings were held this period, with Messrs. Leake, Tower and Carey in charge, respectively. Films shown were: 'Grass and Brush Fire Fighting', 'How to Pass Safely', and 'National League Professional Football'. The last-mentioned received critical acclaim. Also shown were two excellent Service color films, 'Know Your Ducks' and 'Land of the Prairie Ducks'.

Miscellaneous SAFETY signs were posted in appropriate places throughout the Refuge.

It should be noted that the topping of trees at the P-Ranch Station and Double-O Station, referred to in our September-December, 1961 Narrative Report, paid off handsomely on October 12, when a large tree blew down at the Double-O, toward the residence, but, thanks to having been topped a year ago, fell short of the fence, and caused no damage.

The walkway and guardrailing constructed on Grain Camp Dam eliminates many hazards heretofore existent.

The SAFETY committee this period has reviewed all past recommendations of its predecessors, and reports that all have been either corrected to date, or are in the actual process of correction.

National SAFETY Council posters are posted each Monday morning on our office bulletin board.

SAFETY seat belts have been ordered for vehicles not having a pair already installed, and new eaves troughs are being assembled for mounting over entrances of residences not already so equipped.

Our first SAFETY dinner was held September 21 at the Pine Room, a charming restaurant (?) in Burns. The losers cheerfully (?) ponied up $2.75 per man for adelicious sirloin steak dinner for the winners.

Personnel at this Refuge are unanimously agreed that some physical token of recognition for a full year of accident-free employment be awarded. At the same time, it was brought out that SAFETY and safe working practices comprise a factor in personnel appraisal. The sentiment of the personnel is that an award is a positive attitude; the appraisal reflection alone, is a negative.

Two fire drills were held this period; September 4 and December 26.

One minor accident, a temporary loss of hearing, caused by use of a jackhammer, was investigated by the SAFETY committee. There was no lost time.

This Refuge has 189 days since the last lost-time accident, at the close of business Dec. 31, 1962. Our immediate objective is to raise this figure to 554 days by Dec. 31, 1963.

VII. OTHER ITEMS

A. Grasshopper Control. In our summary of the 1962 grasshopper control work in the May-August, 1962 Narrative Report, we inadverdently ommitted some spraying done in the Double-O unit in that reporting period.

Following is a summary of the control work done there at that time.

On July 11, 1962, a visit to the Double-O grain field revealed that a rather high concentration of grasshoppers (Camnula sp.) were making serious inroads on the Hammchen Barley seeded there earlier this spring. The "Hoppers" had practically denuded a 10 to 15 foot strip about 75 to 100 yards long along the south-east corner of the grain field. Subsequent arrangements were made with the county to spray the area with Dieldrin.

On July 19, 28 acres of the grain field were sprayed, and on July 20 another 42 acres were sprayed with a ground pumper with boom at an application rate of ½ oz. Dieldrin/acre.

The treatment was quite successful. All costs were absorbed by the county.

-30-

Composition Credits.

a. J.C. Scharff. Sect. I A & B-1; Sect. III B; III F; IV A,B,C VI A,B,C-1,E;

b. Eugene Kridler. Sect. I B 2; Sect. II; Sect. V; Sect. VI C-2

c. Joseph P. Mazzoni. Sect. III D; Sect. VI D; Sect. VII

d. Noel L. Cagle. Basic information for Sect. III A 1

e. Alfred S. Ludi. Basic information for Sect. III A 2

f. Marselle Leake. Basic information for Sect. III A 3

g. Lee Tower. Sect. VI F; All editing and typing; assembly of completed Narrative Report

SIGNATURE PAGE

Submitted by:

_____
(Signature)

_____
(Title)

Date: _____

Approved, Regional Office:

Date: _____

_____
(Signature)

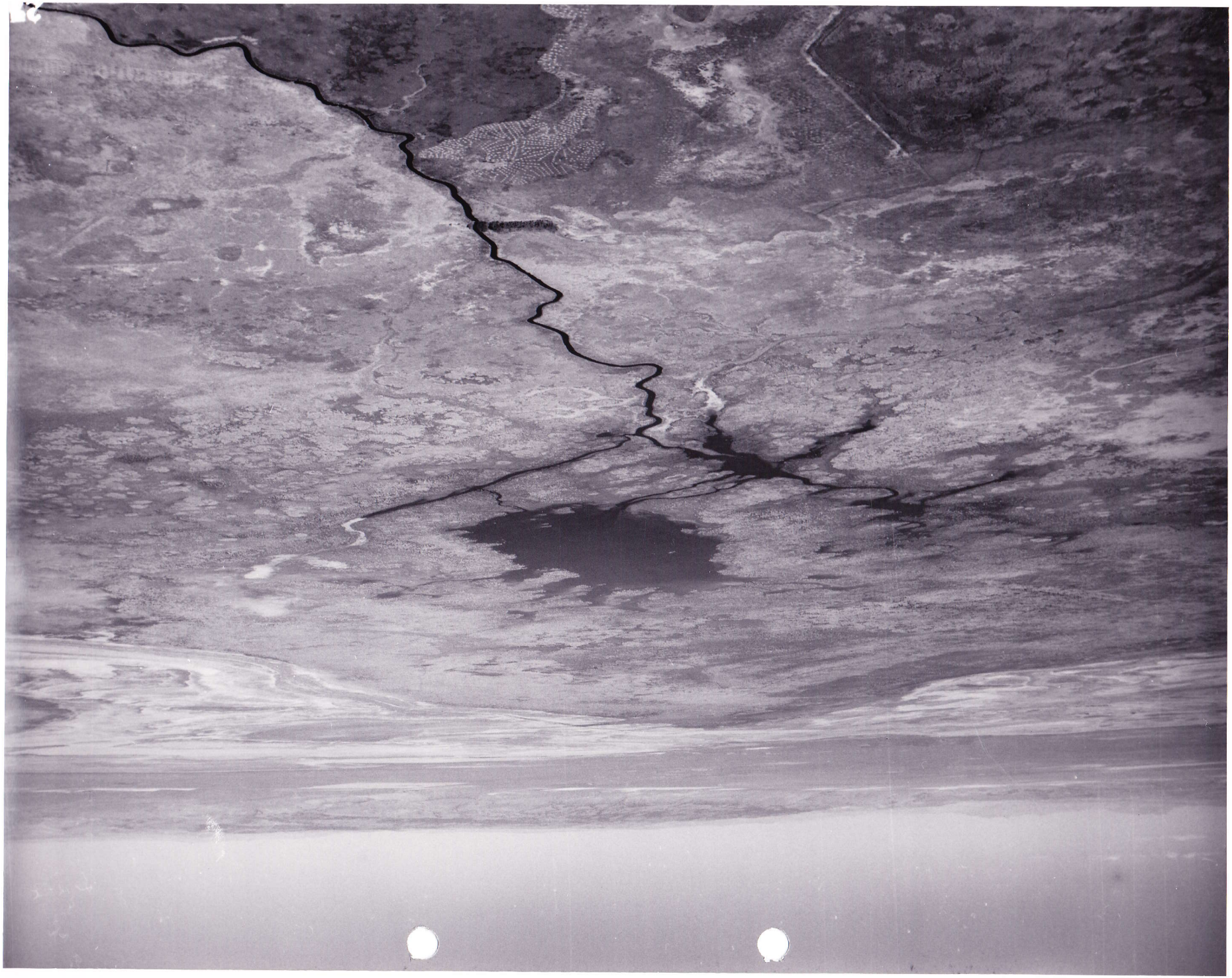
_____
(Title)

Roll K-K No. 27 (9/4/62) Headquarters. Showing islands constructed in display pond to reduce losses of pinioned birds by cats, raccoons, and other predators. -Kridler-

Roll K-K No. 26 (9/4/62) Boca Lake reflooded last winter served as most important brood area the past summer. -Kridler-

25

Roll K-K No. 28 (9/4/62) Remains of Malheur Lake.
Less than 1,000 acres of water, 1-2 inches deep.
No aquatics--no anything. Blitzen River in foreground.
-Kridler-



88-62, 9/15/62; Blitzen River campgrounds on opening day of Refuge Archery Hunt. -Mazzoni

89-62, 9/15/62; This rather pleased archer took this nice four-point buck on the run with a shot behind the left shoulder. -Mazzoni

93-62, 12/6/62; 48" pipe with riser headgate installed at terminus of Diamond Drain, emptying into the Klitzen River.
-Mazzoni

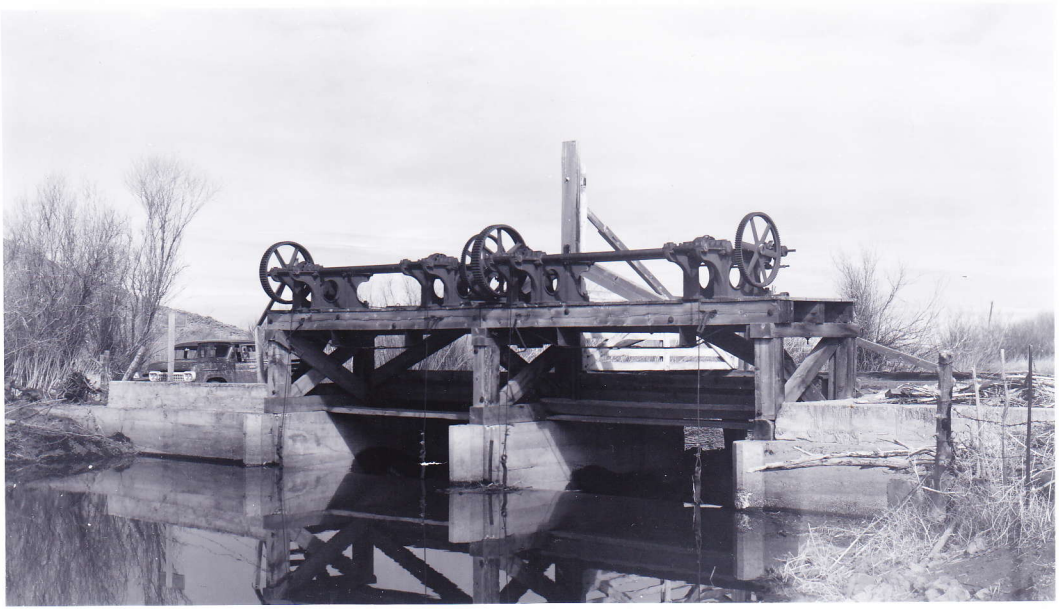
94-62, 12/13/62; Ditch dug for installation of drainage pipe from Skunk Farm Field to Klitzen River.
(Diamond Drain Project)
-Mazzoni

99-62, 12/17/62; New yard fence constructed at P-Ranch substation by Maintenanceman Davies. -Mazzoni

100-62, 12/17/62; Very attractive gate designed and constructed by Building Repairman Ludi and Shop Crew.
-Mazzoni

95-62, 12/17/62: 24" drain pipe with screw-type headgate installed. Should facilitate control of extensive stands of cattail and bullrush in this area. (Diamond Drain Project) -Hammi

96-62, 12/17/62: Rebuilding old canal and constructing levee on south side. Lower end of Diamond Drain project. (Brown Farm Field) -Hammi



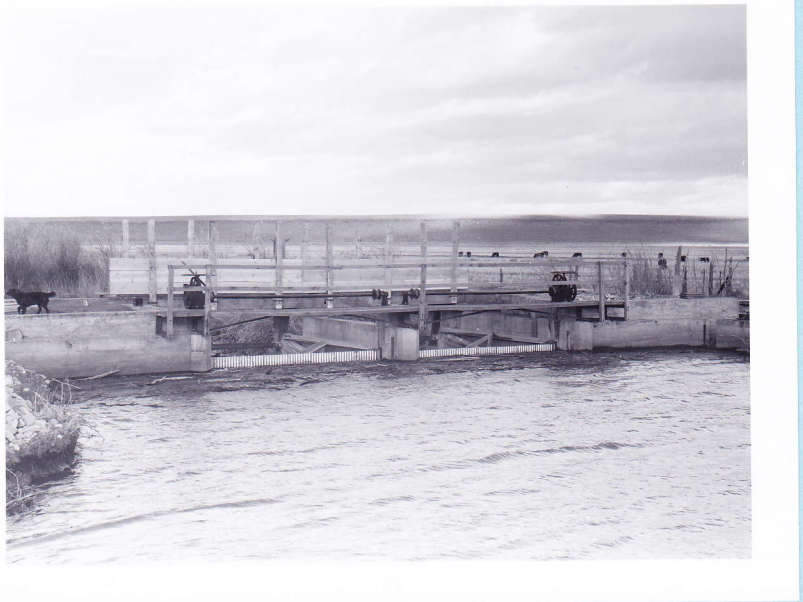
60-2; Grain Camp Dam as it looked prior to renovation. It took one big man or two small men many revolutions to raise heavy wooden gates. -Mazzoni

82-62, 9/28/62; With most of the old wooden structure removed, guides for the new galvanized metal gates are being installed. Laborer Jess and O&M Foreman Cagle -Mazzoni

83-62, 10/2/62; Installation of radial arms for east gate. New re-enforced pivot points were required. Two visiting cowboys, Ash, Jess, Currey and Cagle operating crane. -Mazzoni

84-62, 10/2/62; Lowering 10' x 15'1" east gate into position. Currey on left, Cagle operating machine. -Mazzoni

85-62, 10/2/62; Bolting east gate to radial arms. Jess, Currey and Cagle. -Mazzoni



86-62, 10/2/62; Renovation completed.

87-62, 10/2/62; Addition of walk-way and guard railing has virtually eliminated SAFETY hazards connected with the operation of this structure. -Mazzoni

90-62, 10/5/62; Old willow fence cleanup at Double-O substation. Section of new fence can be seen in upper right hand corner. -Mazzoni

81-62, 9/10/62; Section of St. Clair Canal in the Double-O unit prior to cleaning. -Mazzoni

103-62, 9/15/62; Same section a few days later.
-Mazzoni

91-62, 11/19/62; Golden Canal cleaning job in Double-O unit, Lower Swamp Field. Blom operating dragline.
-Mazzoni

92-62, 12/13/62; Same section of canal following cleaning. Picture taken about 30yds. farther west than 91-62.
-Mazzoni

97-62, 12/13/62; Cattail and bullrush infested section typical of much of the Colden Canal prior to cleaning.
-Mazzoni

98-62, 12/13/62; Same section of canal. Slow going for Operator Blum and his dragline. -Mazzoni

3-1750
Form NR-1
(Rev. March 1953)

WATERFOWL

REFUGE Malheur National Wildlife Refuge
Burns, Oregon

MONTHS OF September TO December, , 1962

(1) Species	(2) Weeks of reporting period: 9/2-8 (1)	9/9-15 (2)	9/16-22 (3)	9/23-29 (4)	9/30-10/6 (5)	10/7-13 (6)	10/14-20 (7)	10/21-27 (8)	10/28-11/3 (9)	11/4-10 (10)
Swans:										
Whistling						30	38	50	65	136
Trumpeter	14	15	16	15	15	14	15	15	15	15
Geese:										
Canada	2,100	2,550	2,575	3,675	3,475	3,325	2,675	2,700	3,175	3,200
Cackling										
Brant										
White-fronted		75	125	700	1,000	1,400				
Snow			1	175	1,250	1,750	3,375	3,000	2,500	2,150
Blue					1	1				
~~Other~~ Total Geese	2,100	2,625	2,701	4,550	5,726	6,476	6,050	5,700	5,675	5,350
Ducks:										
Mallard	5,900	7,250	6,450	6,375	4,300	2,200	4,375	5,225	5,875	7,450
Black										
Gadwall	3,475	1,750	2,950	1,300	1,400	1,475	1,800	1,250	1,125	650
Baldpate	1,150	1,200	1,275	350	1,125	1,300	4,950	4,925	3,200	2,700
Pintail	6,400	3,400	6,450	2,300	2,775	3,250	32,000	41,450	50,600	61,300
Green-winged teal	1,575	3,800	4,700	4,350	4,250	4,150	5,400	3,950	4,600	4,200
Blue-winged teal										
Cinnamon teal	1,550	600	850	450	400	275	50	50	50	50
Shoveler	2,825	3,650	2,625	1,800	1,350	900	1,075	800	650	450
Wood								5	5	
Redhead	1,600	725	1,425	900	650	400	575	400	400	175
Ring-necked							10	10	10	10
Canvasback	150	100	300	100	200	300	220	160	150	30
Scaup	250	200	475	200	300	400	450	400	265	125
Goldeneye										5
Bufflehead			25	10	20	25	50	50	75	100
Ruddy	800	1,225	1,050	900	700	500	450	425	250	285
~~Other~~ Com. Merganser	25	20	10					25	75	70
Hooded Merganser										25
Total Ducks:	25,700	23,920	28,585	19,635	17,470	15,175	51,405	59,125	67,330	77,625
Coot:	16,650	22,900	17,700	12,300	8,750	5,200	1,750	1,925	2,050	2,150

INT.-DUP., D.C.-53824-59

3 -1750a
Cont. NR-1
(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE Malheur National Wildlife Refuge MONTHS OF September TO December, 1962

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods seen	(4) Production Estimated total
	11/11-17 11	11/18-24 12	11/25-12/1 13	12/2-8 14	12/9-15 15	12/16-12/22 16	12/23-29 17	18			
Swans:											
Whistling	600	200	200	150	150	128	158		13,335		
Trumpeter	15	15	21	21	21	21	21		1,988		
Geese:											
Canada	3,000	2,325	2,600	3,000	3,100	3,375	3,725		354,025		
Cackling											
Brant											
White-fronted					5	5	5		23,205		
Snow											
Blue	200	80							101,367		
Other									14		
Total Geese:	3,200	2,405	2,600	3,000	3,105	3,380	3,735		478,611		
Ducks:											
Mallard											
Black	5,000	3,800	4,000	3,500	3,000	2,150	5,600		577,150		
Barrow's Goldeneye							1		7		
Gadwall	550	425	450	500	500	450	400		145,950		
Baldpate	2,150	1,400	1,500	2,000	3,000	3,775	4,650		288,750		
Pintail	60,000	55,400	50,000	30,000	20,000	4,700	1,675		3,021,900		
Green-winged teal	3,000	2,100	2,000	1,900	1,600	1,475	1,400		381,150		
Blue-winged teal											
Cinnamon teal			5	5	5	5	3		30,436		
Shoveler	300	125	50	15	15	15	14		116,613		
Wood			5	5					140		
Redhead	300	100	100	100	50	50	25		55,825		
Ring-necked	25	50	50	100	100	115	100		4,060		
Canvasback	25	50	100	125	175	165	10		16,520		
Scaup	250	400	500	500	500	525	425		43,155		
Goldeneye	25	50	50	100	150	200	300		6,160		
Bufflehead	75	75	100	100	100	100	50		6,685		
Ruddy	250	200	100	100	75	75	25		51,870		
Other											
Com. Merganser		50	40	50	50	40	10		3,255		
Hooded Merganser		25	25	50	75	75	50		2,450		
Total, Ducks:	71,970	64,250	59,075	39,150	29,395	13,915	15,138		4,752,076		
Coot:	1,200	475	450	400	300	225	200		663,775		

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans	15,323	615	
Geese	478,611	6,476	
Ducks	4,752,076	75,610	
Coots	663,775	22,900	

SUMMARY

Principal feeding areas Geese-Various meadows and grain fields at B.V.; Ducks-grain field & Malheur Lake area.

Principal nesting areas

Reported by Eugene Kridler

Wildlife Management Biologist

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.

(2) Weeks of Reporting Period: Estimated average refuge populations.

(3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.

(4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(5) Total Days Use: A summary of data recorded under (3).

(6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.

(7) Total Production: A summary of data recorded under (4).

Interior Duplicating Section, Washington, D. C.
1953

INT.-DUP., D.C.-53824-59

3-1751
Form NR-1A
(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)

Refuge Malheur National Wildlife Refuge Months of September to December 195[illegible]

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
Western Grebe	Prev. Period		300	9/1	5	11/8				
Eared Grebe	"	"	700	"	1	12/18				200
Pied-billed Grebe	"	"	Unknown		10	12/31				1,000
White Pelican	"	"	200	9/1	35	10/8				200
Double-crested Cormorant	"	"	50	"	30	9/15				75
White-faced Ibis	"	"	15	"	15	9/1				15
American Bittern	"	"	Present during September; Unknown numbers							
Great Blue Heron	"	"	30	9/1	20	12/31				50
Common Egret	"	"	50	"	1	12/31				100
Snowy Egret	"	"	50	"	50	9/1				50
Black-crowned Night Heron	"	"	50	"	13	9/8				50
Sandhill Crane	"	"	1,350	"	13	11/14				1,500
II. Shorebirds, Gulls and Terns:										
Avocet	Prev. Period		1,500	9/1	5	10/1				1,500
Black-necked Stilt	"	"	10	"	10	9/1				10
Common Snipe	"	"	500	Sept.	9	12/31				500
Dowitcher	"	"	4,000	9/1	3	11/31				5,000
Least/Western Sandpiper	"	"	5,000	9/1	9	11/5				5,000
Dunlin	"	"	200	"	200	9/1				200
Greater Yellowlegs	"	"	150	Sept.	?	11/1				150
Killdeer	"	"	1,000	"	1	12/31				1,500
Ring-billed Gull	"	"	800	"	40	10/14				1,000
California Gull	"	"	200	"	5	"				300
Black Tern	"	"	6	9/10	?	9/23				25

(over)

(1)	(2)		(3)		(4)		(5)	(6)
III. Doves and Pigeons:								
Mourning dove			1,000	9/15	1	11/17		2,000
White-winged dove								
IV. Predaceous Birds:								
Golden eagle	Prev.	Period	20	12/26	20	12/31		30
Duck hawk								
Horned owl	"	"	300	Period				300
Magpie	"	"	2,000	Nov-Dec.				2,000
Raven	"	"	200	Dec.				200
Crow	"	"	50	10/8	10	10/15		50
Bald Eagle	1	11/5	7	12/31	6	12/31		10
Red-tailed Hawk	Prev.	Period	25	8/31	15	"		25
Rough-legged Hawk			100	Dec.				150
Swainson's Hawk	Prev.	Period	25	9/1				25
Marsh Hawk	"	"	100	Period				150
Prairie Falcon	"	"	2	"				2
Osprey	1	9/18	1	9/18	1	9/18		1
Long-eared Owl	Prev.	Period	10	9/1				10
Barn Owl	1	10/27	1	10/27	1	10/27		1

Reported by .....

INSTRUCTIONS

(1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge during the period concerned.

INT.-DUP. SEC., WASH., D.C.

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

1613

Refuge Malheur Months of Sept. to Dec., 1962

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re-stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Sage Grouse					Unknown	0	0	0	400	
Calif. Quail					1:1	0	0	0	7,000	Some movement on and off refuge. Some removal by hunting on refuge boundaries. Probably no more than 300.
Ring-necked Pheasant					1:1	0	0	0	2,500	Slight movement on and off refuge. Probably 25 removed by boundary hunting.
Chukar					1:1	0	0	0	500	On and off basis. Majority west side up upper Blitzen Valley.
Gray Partridge					Unknown	0	0	0	?	None seen this period. Report of a few near "00" unit

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

(1) SPECIES: Use correct common name.

(2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.

(4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.

(5) REMOVALS: Indicate total number in each category removed during the report period.

(6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.

(7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

* Only columns applicable to the period covered should be used.

3-1753
Form NR-3
(June 1945)

BIG GAME

Refuge Malheur Calendar Year 1962

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions		(7) Estimated Total Refuge Population		(8) Sex Ratio
Common Name	Cover types, total Acreage of Habitat	Number	Hunting	For Re-stocking	Sold	For Research	Predation	Disease	Winter Loss	Number	Source	At period of Greatest use	As of Dec. 31	
Mule Deer			21	0	0	0	?	?	0	0		1,100	600	1:4
Pronghorn			0	0	0	0	?	?	0	0		70	60	

Remarks: Mule Deer: Much use on an on-off basis. Predation and disease loss unknown, but very light, if any.
Pronghorn : No dead found from predation or disease.

Reported by _____

INSTRUCTIONS

Form NR-3 - BIG GAME

(1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisiana white-tailed deer.

(2) DENSITY: Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge: once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated total number of young produced on refuge.

(4) REMOVALS: Indicate total number in each category removed during the year.

(5) LOSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.

(6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.

(7) TOTAL REFUGE POPULATION: Give the estimated population of <u>each species</u> on the refuge at period of its greatest abundance and also as of Dec. 31.

(8) SEX RATIO: Indicate the percentage of males and females of each species as determined from field observations or through removals.

3-1755
Form NR-5

DISEASE

Refuge Malheur Year 1962

Botulism

Period of outbreak _____

Period of heaviest losses _____

Losses:

	Actual Count	Estimated
(a) Waterfowl		
(b) Shorebirds		
(c) Other		

Number Hospitalized	No. Recovered	% Recovered
(a) Waterfowl		
(b) Shorebirds		
(c) Other		

Areas affected (location and approximate acreage) _____

Water conditions (average depth of water in sickness areas, reflooding of exposed flats, etc.

Condition of vegetation and invertebrate life _____

Remarks Only an occasional flapper noticed. Can be considered to have been practically nonexistent.

Lead Poisoning or other Disease

Kind of disease _____

Species affected _____

Number Affected Species	Actual Count	Estimated

Number Recovered _____

Number lost _____

Source of infection _____

Water conditions _____

Food conditions _____

Remarks None observed.

INT.-DUP., D.C.- 53818-59

3-1756
Form NR-6
(Rev. August 1957)

PUBLIC USE

Refuge Malheur National Wildlife Refuge Calendar Year 1962

Total Use Visitor-Days	Hunting Use	Fishing Use	Miscellaneous Use
12,000	364 3%	1200 10%	10,436 87%

Where practical, by means of occasional spot checks, or other methods, show by percent and visitor-days the breakdown of the above figures and other related information:

Hunting (on refuge lands):	Percent	Visitor-Days	Acres
Waterfowl	-	-	-
Upland Game	-	-	-
Big Game	100	364	16,000

Supervised by refuge X by State X No. of blinds -

Miscellaneous:	Percent	Visitor-Days
Recreation *	92	9,586
Official	3	300
Economic Use	4	425
Other	1	125

Comments:

Hunting (off refuge lands): Estimated man-days of hunting on lands adjacent to the refuge 500 (These figures should not be included in hunting-use totals above).

Fishing:

Acres of ponds or lakes 90 and miles of streams 17 open to fishing.

*(including picnicking, swimming, boating, camping, viewing wildlife, and photographing)

3-1757
Form NR-7
(Rev. June 1960)

(1)

NONAGRIC URAL COLLECTIONS, RECEIPTS, AN LANTINGS

Refuge Malheur Year 19 62

Species	Collections and Receipts (Seeds, rootstocks, trees, shrubs)						Plantings (Marsh - Aquatic - Upland)						
	Amount (Lbs., bus., etc.)	(2) C or R	Date	Method or Source	Cost	(3) Total Amount on Hand	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount and Nature of Propagules	Date	Survival	Cause of Loss
NONE THIS YEAR													

(1) Report agronomic farm crops on Form NR-8
(2) C = Collections and R = Receipts
(3) Use "S" to denote surplus

Total acreage planted:
Marsh and aquatic _____
Hedgerows, cover patches _____
Food strips, food patches _____
Forest plantings _____

Remarks: _____

76148

3-1758
Form NR-8
(Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Malheur National Wildlife Refuge County Harney State Oregon

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Waterfowl Browsing Crops Type and Kind	Total Acreage
			Harvested		Unharvested				
	Acres	Bu./Tons	Acres	Bu./Tons	Acres	Bu./Tons			
Barley	140	4520			222	4150	362		
Oats	130	3600			24	300	154		
* Rye	62	620	30	290	208	250	300		
Spelts					110	660	110		
								Fallow Ag. Land	50

* - Volunteer from 340 acre seeding, 1961.

No. of Permittees: Agricultural Operations 4 Haying Operations 1 Grazing Operations 63

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
Oat	198.9	120	$994.50	1. Cattle	38,042	112,914.7	$170,015.95	95,000
				2. Other			$1260.00	
				1. Total Refuge Acreage Under Cultivation				952
Hay - Wild		17,140		2. Acreage Cultivated as Service Operation				26

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested - Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested - Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.

3-1570
NR-88
(4/54)

REFUGE GRAIN REPORT

Refuge Malheur National Wildlife Refuge Months of January through December, 1962

(1) Variety*	(2) On Hand Beginning of Period	(3) Received During Period	(4) Total	(5) Grain Disposed of				(6) On Hand End of Period	(7) Proposed or Suitable Use*		
				Transferred	Seeded	Fed	Total		Seed	Feed	Surplus
Barley	7,064	-	7,064	285	100	2,835	3,220	3,844	1,000	2,844	
Wheat	300	-	300	-	-	-	-	300		300	
Oats	1,370	-	1,370	100	-	190	290	1,080	480	600	
Rye	967	181	1,148	-	-	353	353	795	500	295	
Speltz	310	-	310	-	-	-	-	310		310	

(8) Indicate shipping or collection points All grain received on Malheur Refuge

(9) Grain is stored at P-B Ranch, Buena Vista, Double-O, & Refuge Headquarters

(10) Remarks (1) The 1961 Sept.-Dec. NR incorrectly reported 7046 bu. of barley as being on hand at the end of the period. This figure should have been 7064.

*See instructions on back. (2) 220 bu. barley to Ruby Lake Refuge; 65 bu. barley and 100 bu. oats to Desert Game Range

NR-8a

REFUGE GRAIN REPORT

This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

Report all grain in bushels. For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)—55 lb., corn (ear)—70 lb., wheat—60 lb., barley—50 lb., rye—55 lb., oats—30 lb., soy beans—60 lb., millet—50 lb., cowpeas—60 lb., and mixed—50 lb. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

(1) List each type of grain separately and specifically, as flint corn, yellow dent corn, square deal hybrid corn, garnet wheat, red May wheat, durum wheat, spring wheat, proso millet, combine milo, new era cowpeas, mikado soy beans, etc. Mere listing as corn, wheat, and soybeans will not suffice, as specific details are necessary in considering transfer of seed supplies to other refuges. Include only domestic grains; aquatic and other seeds will be listed on NR–9.

(3) Report all grain received during period from all sources, such as transfer, share cropping, or harvest from food patches.

(4) A total of columns 2 and 3.

(6) Column 4 less column 5.

(7) This is a proposed break-down by varieties of grain listed in column 6. Indicate if grain is suitable for seeding new crops.

(8) Nearest railroad station for shipping and receiving.

(9) Where stored on refuge: "Headquarters granary," etc.

(10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

INT.–DUP. SEC., WASH., D.C. 17065

Banding
Color Marking

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE
P. O. Box 3737
Portland 8, Oregon

October 27, 1961

Memorandum

To : Pacific Flyway Committee and Cooperators

From : Pacific Flyway Representative

Subject: Swan Color Marking - Malheur Refuge

This is to advise that a number of whistling swans are being marked with yellow dye at Malheur National Wildlife Refuge in southeastern Oregon. Plumage dye being used will likely remain visible throughout this winter and next spring.

Should you observe any yellow color-marked swans, make note of the locality, date and total birds in the group and report the information to this office or to Malheur National Wildlife Refuge, P. O. Box 113, Burns, Oregon.

The purpose of this marking project is to determine migration routes of swans using Malheur Refuge during the fall, winter and subsequent spring period.

Extra copies of this memorandum are being supplied to pass on to other field personnel who may encounter these color marked birds.

John E Chatton

DISTRIBUTION:
Brooks - Alaska - 5
Hansen - Alaska - 10
Hatter - B. C. - 10
Curt Smith - Alberta - 10
E. Paynter - Sask. - 10
Bob Smith - 2
K. Jensen - 2
Lemckhart - 10
Kebbe - 10
Oglesby - 5
Kozlik - 10
Fleming - 4
D. Smith - 6
Bizeau - 6
Freeman - Mont. - 10

JEChattin:mg

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE
P. O. Box 3737
Portland 8, Oregon

October 27, 1961

Memorandum

To : Refuge Managers and U. S. Game Management Agents, Region 1

From : Chief, Division of Wildlife, Portland, Oregon

Subject: Swan Color Marking - Malheur Refuge

This is to advise that a number of whistling swans are being marked with yellow dye at Malheur National Wildlife Refuge in southeastern Oregon. Plumage dye being used will likely remain visible throughout this winter and next spring.

Should you observe any yellow color-marked swans, make note of the locality, date, and total birds in the group and report the information to this office or to Malheur National Wildlife Refuge, P. O. Box 113, Burns, Oregon.

The purpose of this marking project is to determine migration routes of swans using Malheur Refuge during the fall, winter and subsequent spring period.

Extra copies of this memorandum are being supplied to pass on to other field personnel who may encounter these color marked birds.

Richard E. Griffith

cc Refuges, R. 0.

DISTRIBUTION:
3 copies of this memo to each of the above persons.

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